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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet

1

of

3

Complete if Known

Application Number	09/852,401
Filing Date	May 9, 2001
First Named Inventor	Rosenberg, Louis B.
Art Unit	2675
Examiner Name	Nguyen, Chanh Duy
Attorney Docket Number	021360-010520US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
CAN	AA	US-3,220,121	11/30/1955	Cutler	
	AB	US-3,517,448	08/30/1970	Canyon et al.	
	AC	US-3,903,614	09/09/1975	Diamond et al.	
	AD	US-4,236,325	10/02/1980	Hall et al.	
	AE	US-4,513,235	04/23/1985	Acklam et al.	
	AF	US-4,599,070	07/08/1988	Hladky et al.	
	AG	US-4,648,782	03/10/1987	Kraft	
	AH	US-4,708,656	11/24/1987	De Vries et al.	
	AI	US-4,713,007	12/15/1987	Alban	
	AJ	US-4,891,764	01/02/1990	McIntosh	
	AK	US-5,019,761	05/28/1991	Kraft	
	AL	US-5,022,407	06/11/1991	Horch et al.	
	AM	US-5,148,586	09/08/1992	Hollis et al.	
	AN	US-5,209,661	05/11/1993	Hidreth et al.	
	AO	US-5,223,776	06/29/1993	Radke, et al.	
	AP	US-5,240,417	08/31/1993	Smithson et al.	
	AQ	US-5,271,290	12/21/1993	Fischer	
	AR	US-5,275,174	01/04/1994	Cook	
	AS	US-5,785,630	07/28/1998	Bobick et al.	
	AT	US-B1 5,275,174 (RE)	08/04/1998	Cook	

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Examiner Initials ¹	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)				
CAN	AU	WO	WO01/11775	A1	02/15/2001	Peter Gold		<input type="checkbox"/>

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² Applicant's unique citation designation number (optional). ³ Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ⁴ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 18 if possible. ⁷ Applicant is to place a check mark here if English language Translation is attached.

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet

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Application Number	09/852,401
Filing Date	May 9, 2001
First Named Inventor	Rosenberg, Louis B.
Art Unit	2875
Examiner Name	Nguyen, Chanh Duy
Attorney Docket Number	021360-010520US

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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
CON	AV	ZAN et al., "Manual resolution of Compliance When Work and Force Cues are Minimized," DSC - Vol. 40, Advances in Robotics, Mechatronics and Haptic Interfaces ASME 1993, The American Society of Mechanical Engineers, pp. 99-104, (11/28-12/03/1993)	
	AW	ADELSTEIN et al., "Human Machine Interfaces for Teleoperators and Virtual Environments, NASA Conference Publication 10071, N95-14042, pp. 108-113, (03/04-09/1990)	
	AX	ADELSTEIN et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, Advances in Robotics, pp. 1-12, (1992)	
	AY	BAIGRIE, "Electric Control Loading - A Low Cost, High Performance Alternative," Proceedings, pp. 247-264, (November 6-8, 1990)	
	AZ	IWATA, "Pen-based Haptic Virtual Environment," 0-7803-1383-1/93 IEEE, pp. 287-292, (1993)	
	BA	IWATA et al., "Volume Haptization," 0-8185-4910-0/93 IEEE, pp. 16-23, (1993)	
	BB	IWATA, "Artificial Reality with Force-feedback: Development of Desktop Virtual Space with Compact Master Manipulator," Computer Graphics, Vol. 24, No. 4 - ACM-0-89791-344-2/90/008/0165, pp. 165-170, (August 1990)	
	BC	RUSSO, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," MIT Libraries Archives 08/14/1990, pp. 1-131, (May 1990)	
	BD	BURDEA et al., "Dextrous telerobotics with force feedback - an overview. Part 2: Human factors," Robotics (1991) Volume 9, pp. 291-298, (06/22/1990)	
	BE	BROOKS et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," JPL Publication 85-11; NASA-CR-175890; N85-28559, pp. 1-84, (03/1/1985)	
	BF	JONES et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); Experimental Brain Research, Vol. 79, No. 1, pp. 150-156, (1990)	
	BG	BURDEA et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," 1993 IEEE International Conference on Robotics and Automation, pp. 25-44, (05/02/1993)	
	BH	SNOW et al., "Compact Force-Reflecting Hand Controller," NASA TechBriefs, April, 1991, Volume 5, Number 4, p. 88, (April 1991)	
	BI	SNOW et al., "Model-X Force-Reflecting-Hand-Controller," NT Control No. MPO-17851; JPL Case No. 5348, pp. 1-4, (06/15/1989)	

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Signature

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Date

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Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **3** of **3****Complete if Known**

Application Number	09/852,401
Filing Date	May 8, 2001
First Named Inventor	Rosenberg, Louis B.
Art Unit	2675
Examiner Name	Nguyen, Chanh Duy
Attorney Docket Number	021360-010520US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
CAN	BJ	BEJCZY et al., "Controlling Remote Manipulators Through Kinesthetic Coupling," Computers in Mechanical Engineering NT Control No. MPO-17851; JPL Case No. 5348 Attachment, pp. 48-61, (July 1983)	
	BK	TOWNSEND "Model-X Force-reflecting Hand Controller," NT Control No. MPO-17851; JPL Case No. 5348 Attachment, pp. 1-17, (08/20/1987)	
	BL	KOTOKU, "A Predictive Display with Force Feedback and Its Application to Remote Manipulation System with Transmission Time Delay," 0-7803-0737-2/92 1992 © IEEE, pp. 239-246, (07/07-10/1992)	
	BM	KOTOKU et al., "Environment Modeling for the Interactive Display (EMID) used in Telerobotic Systems," IEEE Cat. No. 01TH0375-8, pp. 899-1004, (11/03-05/1991)	
	BN	HIROTA, et al., "Development of Surface Display," 0-7803-1363-1/93 © 1993 IEEE, pp. 256-262, (1993)	
	BO	OUH-YOUNG, "Force Display in Molecular Docking," Order No. 9034744, p. 1-369, (1990)	
	BP	TADROS, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators, MIT Archive @ Massachusetts Institute of Technology, pp. 1-58, (February 1990)	
	BQ	CALDWELL et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, (1993)	
	BR	ADELSTEIN, "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, Advances in Robotics, Edited by H. Kazerooni, pp. 1-12, (1992)	
	BS	GOTOW et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WA11-11:00, pp. 332-337	
	BT	STANLEY et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, Advances in Robotics, pp. 65-61, (1992)	
	BU	RUSSO, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, Advances in Robotics, pp. 63-70, (1992)	
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	BW	WRIGHT, "A Manufacturing Hand," ISSN 0738-5845/85 (704), pp. 13-23, (1985)	

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Date
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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) Sheet 1 of 3			Complete if Known	
			Application Number	09/852,401
			Filing Date	May 9, 2001
			First Named Inventor	Rosenberg, Louis B.
			Art Unit	2675
			Examiner Name	Nguyen, Chanh Duy
			Attorney Docket Number	IMM1P005B

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U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
CAN		3,157,853	11/17/1964	Hirsch	
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		3,902,687	6/25/1973	Hightower	
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		4,930,770	6/5/1990	Baker	
		4,934,694	6/19/1990	McIntosh	
		5,035,242	7/30/1991	Franklin	
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		5,078,152	1/7/1992	Bond	
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		5,334,027	8/2/1994	Wherlock	
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		6,422,941	7/23/2002	Thorner et al.	

Examiner Initials*	Cite No. ¹	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴ Kind Code ⁵ (if known)			
CAN	BI	EP	EP0349086	1/3/1990	Visser	

Examiner Signature	CHANH NGUYEN	Date Considered	12/11/02
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Substitute for form 1449B/PTO		Complete if Known	
		Application Number	09/852,401
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Filing Date	May 9, 2001
		First Named Inventor	Rosenberg, Louis B.
		Art Unit	2675
		Examiner Name	Nguyen, Chanh Duy
		Attorney Docket Number	IMM1P005B
Sheet	2	of	3

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OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
CM		KONTARINIS et al., "Display of High-Frequency Tactile Information to Teleoperators," Telemanipulator Technology and Space Telerobotics, Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993.	
		PATRICK et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," Cooperative Intelligent Robotics in Space, Rui J. deFigueiredo et al., Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990.	
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		MINSKY, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," Ph.D. Dissertation, MIT, June 1995.	
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		IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990.	
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Examiner Signature	CHANH NGUYEN	Date Considered	11/12/02
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CON		BEJCZY et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," International Computer Technology Conference, The American Society of Mechanical Engineers, San Francisco, CA, August 12-15, 1980.	
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